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ABSTRACT

The Association for Educational Communications and Technology (AECT) and the American Association of School Librarians (AASL) have formed a committee to write a new edition of the "Information Power" guidelines and to investigate the information literacy needs of K-12 students over the next 20 years. The following nine information standards for student learning have been developed: (1) accesses information efficiently and effectively; (2) evaluates information critically and competently; (3) uses information effectively and creatively; (4) pursues information related to personal interests; (5) appreciates and enjoys literature and other creative expressions of information; (6) strives for excellence in information seeking and knowledge generation; (7) recognizes the importance of information to a democratic society; (8) practices ethical behavior in regard to information and information technology; and (9) participates effectively in groups to pursue and generate information. These standards are divided into three broad categories: information literacy (standards 1-3); independent learning (standards 4-6); and social responsibility (standards 7-9). Each standard is written as a lifelong skill and is therefore not grade specific. This paper examines the standards and the interface of these standards with other subjects typically taught in schools. (AEF)

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THE NEW INFORMATION LITERACY STANDARDS FOR STUDENT LEARNING: WHERE DO THEY FIT WITH OTHER CONTENT STANDARDS?

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There are two major factors driving the information literacy skills needed by students as we move into the 21st Century. The two factors are the growth in the quantity of information sources and the ease of access to that information. The amount of information available is growing at exponential rates with the quantity doubling every few years. Along with this rapid growth in the sheer quantity of information, the means for accessing this information has become easier. Electronic databases have placed much of the information within the reach of a few computer keystrokes.

These parallel developments present an interesting challenge for the current K-12 students who will live their adult lives in the 21st century. There will be enormous warehouses of information that is readily and directly available to the end users. Some of this information will be good while some will be bogus. The end user will need to locate the appropriate information and then separate the proverbial wheat from the chaff.

Information Literacy Standards for Student Learning

To meet this challenge the Association for Educational Communications and Technology and the American Association of School Librarians formed a committee to write a new edition of *Information Power* (American Association of School Librarians and Association for Educational Communications and Technology [AASL/AECT], 1988) and investigate the information literacy needs of K-12 students over the next twenty years. The author of this paper is a member of that committee. This committee has developed a set of nine information literacy standards for student learning. These standards will be published in their final form in June of 1998 (AASL/AECT, 1998). The preliminary drafts of the standards and related materials are available at <http://www.ala.org/aasl/infopwrmenu.html>.

The purpose of this paper is to investigate the standards and the interface of these standards with other subjects typically taught in schools. The nine standards are divided into three broad categories. The standards in the second and third categories are dependent upon the standards in the first category. The standards are:

Category I: Information Literacy

The student who is information literate:

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Standard 1: Accesses information efficiently and effectively

Standard 2: Evaluates information critically and competently

Standard 3: Uses information effectively and creatively

Category II: Independent Learning

The student who is an independent learner is information literate and:

Standard 4: Pursues information related to personal interests

Standard 5: Appreciates and enjoys literature and other creative expressions of information

Standard 6: Strives for excellence in information seeking and knowledge generation.

Category III: Social Responsibility

The student who contributes positively to the learning community and to society is information literate and:

Standard 7: Recognizes the importance of information to a democratic society

Standard 8: Practices ethical behavior in regard to information and information technology

Standard 9: Participates effectively in groups to pursue and generate information

In the complete documentation of the standards (AASL/AECT, 1998) there is a set of indicators under each standard. These indicators provide further definition of the standards. Each standard is written as a lifelong skill and is therefore not grade specific.

In the following sections each standard will be discussed separately. Some of the links to other subject area standards will also be identified. The publication entitled

Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education (Kendall & Marzano, 1997) has been used for standards in other subject areas. The links to other subject areas are not meant to be exhaustive but rather to suggest how the information literacy standards can be taught within the context of other subject areas. The committee has made the assumption that the information literacy standards will not be taught separately but will be integrated with other subject areas.

Category I: Information Literacy

Standard 1:

The student who is information literate accesses information efficiently and effectively. The student who has achieved this standard recognizes the need for information, realizes that accurate and comprehensive information is the basis for intelligent decision making, formulates appropriate research questions, identifies potential information sources, and uses successful strategies to locate information. A student might look to an almanac for climatic information on a specific country but look at a thermometer when deciding to wear a coat on a fall day. In both cases the information is weather related but the purpose of the search determines possible sources of information.

Since most classes have at least some part dealing with where to find information on the discipline, this standard can be taught in a wide variety of classes such as those in the following list.

Civics: Knows how shared ideas and values of American political culture are reflected in various sources and documents (Kendall & Marzano, 1997, p. 434).

Geography: Knows the basic elements of maps and globes (e.g., title, legend, cardinal and intermediate directions, scale, grid, principal parallels, meridians, projection) (Kendall & Marzano, 1997, p. 510).

Health: Knows local, state, federal, and private agencies that protect and/or inform the consumer (Kendall & Marzano, 1997, p. 546).

Mathematics: Formulates a problem, determines information required to solve the problem, chooses methods for obtaining this information, and sets limits for acceptable solutions (Kendall & Marzano, 1997, p. 47).

By combining the teaching of the information literacy standard with the appropriate subject matter the student will see the importance of gathering information to all disciplines.

Standard 2:

The student who is information literate evaluates information critically and competently. To master this standard the student must complete tasks such as determining the accuracy, distinguishing among facts and opinions, identifying inaccurate information, and selecting information appropriate to the problem. When evaluating information the student might be making a decision that information in the supermarket tabloids is highly sensationalized and may

not reflect reality. Conversely the information found in a refereed scholarly journal is probably highly accurate.

This information literacy standard can be taught in concert with the other content standards. Some of the possible content area standards are listed below.

English language arts: Determines the validity and reliability of primary and secondary source information and uses information accordingly in reporting on a research topic (Kendall & Marzano, 1997, p. 333).

Health: Knows how to determine whether various resources from home, school, and the community present valid health information, products, and services (Kendall & Marzano, 1997, p. 546).

Mathematics: Knows the difference between pertinent and irrelevant information when solving problems (Kendall & Marzano, 1997, p. 46).

Science: Understands how scientific knowledge changes and accumulates over time (Kendall & Marzano, 1997, p. 99).

Any one of these standards could be used as an opportunity to teach the second Information Literacy standard.

Standard 3:

The student who is information literate uses information effectively and creatively. The student uses the information by organizing it, integrating the new information into one's own knowledge, and communicates information. The use of the information may take the form of a traditional term paper or a page for the World Wide Web. The use may also take a different form such as replacing the brake pads on an automobile.

As with the first two information literacy standards this standard could be taught in most disciplines and classes.

Art connections: Understands how elements, materials, technologies, artistic processes (e.g., imagination, craftsmanship), and organizational principles (e.g., unity and variety, repetition and contrast) are used in similar and distinctive ways in the various art forms (Kendall & Marzano, 1997, p. 381).

Foreign language: Uses verbal and written exchanges to gather and share personal data, information, and opinions (Kendall & Marzano, 1997, p. 498).

History understanding: Knows how to construct time lines of significant historical developments that mark at evenly spaced intervals the years, decades or centuries (Kendall & Marzano, 1997, p. 111).

Mathematics: Represents problem situations in and translates among oral, written, concrete, pictorial, and graphical (Kendall & Marzano, 1997, p. 47).

The first three standards describe the student who is information literate. The next six standards describe how the information literate student uses those skills.

Category II: Independent Learning

Standard 4:

The student who is an independent learner is information literate and pursues information related to personal interests. The student seeks information related to various dimensions of personal well being and evaluates information products related to personal interests. An example of this standard is a student planning a backpacking trip to Europe by collecting information on various sites to see along the way.

Theater: Identifies and researches cultural, historical, and symbolic clues in dramatic texts (Kendall & Marzano, 1997, p.402).

Behavioral studies: Understands how language, literature, the arts, architecture, other artifacts, traditions, beliefs, values, and behaviors contribute to the development and transmission of culture (Kendall & Marzano, 1997, p. 595).

Foreign language: Understands the main idea and themes, as well as some details, from diverse, authentic, abilityappropriate spoken media (e.g., radio, television, live presentation) on topics of personal interest or interest to peers in the target culture (Kendall & Marzano, 1997, p. 500).

This standard deals largely with factual and nonfiction information that is obtained by the students for their own personal interests.

Standard 5:

The student who is an independent learner is information literate and appreciates and enjoys literature and other creative expressions of information. The student is a selfmotivated reader who derives meaning from information and develops creative products in a variety of formats. The student might read, for pure enjoyment, an Anne Rice novel or a play by Shakespeare.

Behavioral studies: Knows that language, stories, folktales, music, and artistic creations are expressions of culture (Kendall & Marzano, 1997, p.594).

Foreign language: Knows some basic expressive forms of the target culture (e.g., children's songs, simple selections from authentic children's literature, types of artwork or graphic representations enjoyed or produced by the peer group in the culture studied) (Kendall & Marzano, 1997, p. 503).

History: Understands how stories, legends, songs, ballads, games, and tall tales describe the environment, lifestyles, beliefs, and struggles of people in various regions of the country (Kendall & Marzano, 1997, p. 125).

In addition to regular classroom activities this standard might be achieved through activities such as a school-wide reading program or including a large collection of pleasure reading materials in the school media center.

Standard 6:

The student who is an independent learner is information literate and strives for excellence in information seeking and knowledge generation. The student is self-reflective by assessing the quality of the process of one's own information seeking and devises strategies for improving selfgenerated knowledge. An example of this is the student who transfers to a new college after the first year because the original school did not offer a particular major.

This standard is only covered indirectly by all traditional subject areas that are taught in K-12 schools.

English language arts: Identifies and defends research questions and topics that may be important in the future (Kendall & Marzano, 1997, p. 333).

Mathematics: Uses a variety of strategies to understand problem-solving situations and processes (e.g., considers different strategies and approaches to a problem, restates problem from various perspectives) (Kendall & Marzano, 1997, p. 47)

Science: Knows that scientific explanations must meet certain criteria to be considered valid (e.g., they must be consistent with experimental and observational evidence about nature, make accurate predictions about systems being studied, be logical, respect the rules of evidence, be open to criticism, report methods and procedures, make a commitment to making knowledge public) (Kendall & Marzano, 1997, p. 98-99)

Since this standard is not covered in other subject areas this is an open opportunity for the school media and technology specialists to teach this concept.

Category III: Social Responsibility

Standard 7:

The student who contributes positively to the learning community and to society is information literate and recognizes the importance of information to a democratic society. The student seeks information from diverse sources and respects the principle of equitable access to information. An example of this standard is a student defending the right of someone else to speak even though that student does not support the position.

Behavioral studies: Understands how the diverse elements that contribute to the development and transmission of culture (e.g., language, literature, the arts, traditions, beliefs, values, behavior patterns) function as an integrated whole (Kendall & Marzano, 1997, p. 595).

Civics: Knows some common forms of diversity in the United States (e.g., ethnic, racial, religious, class, linguistic, gender, national origin) (Kendall & Marzano, 1997, p. 432).

Civics: Knows some of the benefits of diversity (e.g., it fosters a variety of viewpoints, new ideas, and fresh ways of looking at and solving problems; it provides people with choices in the arts, music, literature, and sports; it helps

people appreciate cultural traditions and practices other than their own) (Kendall & Marzano, 1997, p.432).

History: Understands how individuals have worked to achieve the liberties and equality promised in the principles of American democracy and to improve the lives of people from many groups (e.g., Rosa Parks, Martin Luther King, Jr.; Sojourner Truth; Cesar Chavez) (Kendall & Marzano, 1997, p. 121).

This is perhaps the most difficult standard to achieve in a K-12 setting but there are still many things that educators can do to help students understand the benefits diversity in a democratic society.

Standard 8:

The student who contributes positively to the learning community and to society is information literate and practices ethical behavior in regard to information and information technology. The student uses information technology responsibly respecting the principles of intellectual freedom and intellectual property rights. The student who has achieved this standard does not purposefully distort data to support a particular position and provides citations where appropriate.

Civics: Understands the sources, purposes, and functions of law and the importance of the rule of law for the protection of individual rights and the common good (Kendall & Marzano, 1997, p. 417).

Science: Understands the ethical traditions associated with the scientific enterprise (e.g., commitment to peer review, truthful reporting about methods and outcomes of investigations, publication of the result of work) and that scientists who violate these traditions are censored by their peers (Kendall & Marzano, 1997, p. 103).

This standard has major implications for the effective use of technology in schools.

Standard 9:

The student who contributes positively to the learning community and to society is information literate and participates effectively in groups to pursue and generate information. The student shares information with others, respects others' ideas acknowledging their contributions, collaborates with others, identifies information problems, and develops information products. An example of this standard is students working together in groups to solve a common problem.

Theater: Knows how varying collaborative efforts and artistic choices can affect the performance of informal and formal productions (Kendall & Marzano, 1997, p. 402).

Behavioral studies: Understands that a variety of factors (e.g., belief systems, learned behavior patterns) contribute to the ways in which groups respond differently to their physical and social environments and to the wants and needs of their members (Kendall & Marzano, 1997, p. 594).

English language arts: Evaluates own and others' effectiveness in group discussions and in formal presentations (Kendall & Marzano, 1997, p. 345).

Geography: Knows the ways in which culture influences the perception of places and regions (Kendall & Marzano, 1997, p. 518).

This standard can be taught in conjunction with programs such as drama, music, and athletics. Many activities in these subjects are built around groups that can be used as examples for other subject areas.

Conclusion

As the students of today face the enormous growth in information coupled with easier access to that information, schools must provide a new set of skills. These skills, as reflected in the nine Information Literacy Standards, will enable these students to effectively use this information for the greater good.

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